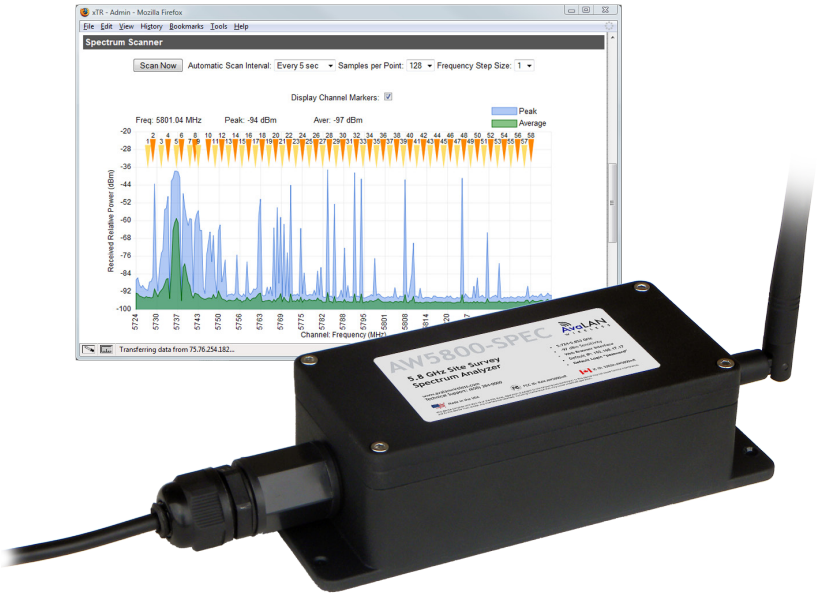


AW5800-SPEC

USER'S MANUAL

5.8 GHz Site Survey
Spectrum Analyzer

Industrial-grade, long-range wireless Ethernet systems

AvaLAN WIRELESS

Thank you for your purchase of the AW5800-SPEC Site Survey Spectrum Analyzer.

The AW5800-SPEC includes:

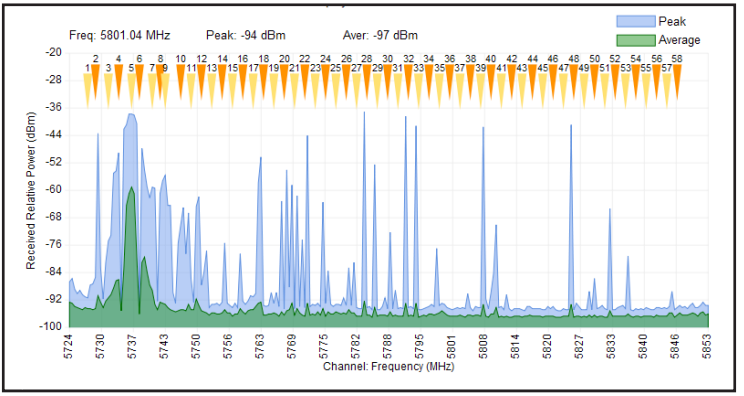
- AW5800-SPEC Site Survey Spectrum Analyzer
- 120 VAC to 12 VDC power adapter
- AW-POE Power Over Ethernet Injector
- AW5-5800 5 dBi Omnidirectional Antenna

If you have any questions when configuring your AvaLAN system, the best place to get answers is to visit www.avalanwireless.com.

You will also find the latest updates there.

If more assistance is needed,
send email to support@avalanwireless.com.

To speak to a live technician, please call technical support at the number below during normal business hours.



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Operational summary

The AW5800-SPEC is a tool that allows you to investigate sources of RF interference in the 5.8 GHz band and to make better decisions about how to configure your AvaLAN wireless network.

Leveraging the RSSI (Received Signal Strength Indication) capability from the AvaLAN AW5800xTR, this unit inexpensively provides a browser-interfaced RF spectrum analysis capability with appropriate frequency range and sensitivity for site survey applications.

Physical Setup

1. The AW5800-SPEC comes with a small omnidirectional antenna. If you wish to test with a directional antenna, you might want to use the AvaLAN AW23-5800 23 dBi Panel Antenna.
2. Place the unit in the desired location and connect your antenna of choice. Connect an Ethernet cable to the RJ45 Jack on the AW5800-SPEC. The water-tight gasket allows the cable connector to pass through it (you may need to trim off anti-snag ears) and then may be tightened down around the cable to seal it. The cable should be long enough to reach a point near a 120 VAC outlet.

3. The included power-over-Ethernet injector (POE) provides the means for adding DC power to unused wires in the cable. Plug the included power supply into an appropriate electrical outlet and into the POE. Connect an Ethernet cable between your PC and the "DATA IN" port on the POE. Connect the cable from the AW5800-SPEC to the "P + DATA OUT" port.

4. Your PC requires a wired LAN connection and should be capable of running a standard web browser such as Internet Explorer or Firefox.

5. For convenient portable use, the optional accessory AW-POE-USB provides a way to power the AW5800-SPEC from a USB port on your laptop. This accessory is a special cable with both a LAN and USB connector on one end and a LAN with injected power on the other end. The USB connection is only used for DC power and draws a maximum of 500 mA.

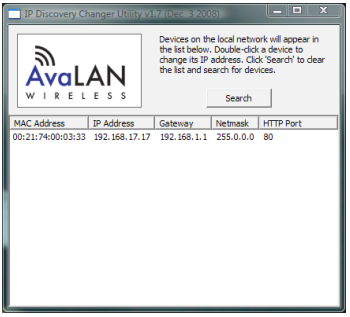
Using the Spectrum Analyzer

1. If you will be using a Windows PC, download the AvaLAN IP Discovery Utility from our website and extract ipfinder.exe from the zip archive, placing it on your desktop or in a convenient folder.

http://www.avalanwireless.com >> Support >> Downloads

Note that this utility runs only in MS Windows, not Linux or MAC. If you must use a non-Windows computer, make sure your subnet mask allows your computer to see 192.168.17.17 and browse to this default address.

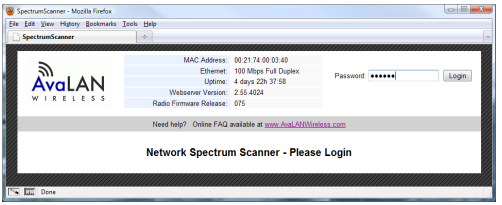
2. Run ipfinder.exe and you should see a window similar to this:



The AW5800-SPEC should appear in the list of devices found. If it doesn't, make sure the wired LAN network properties on your PC are capable of seeing 192.168.17.17 and try again. (If you have changed the IP address and cannot remember what it is, open up your PC's subnet mask to 255.0.0.0 and it should appear when you click the Search button).

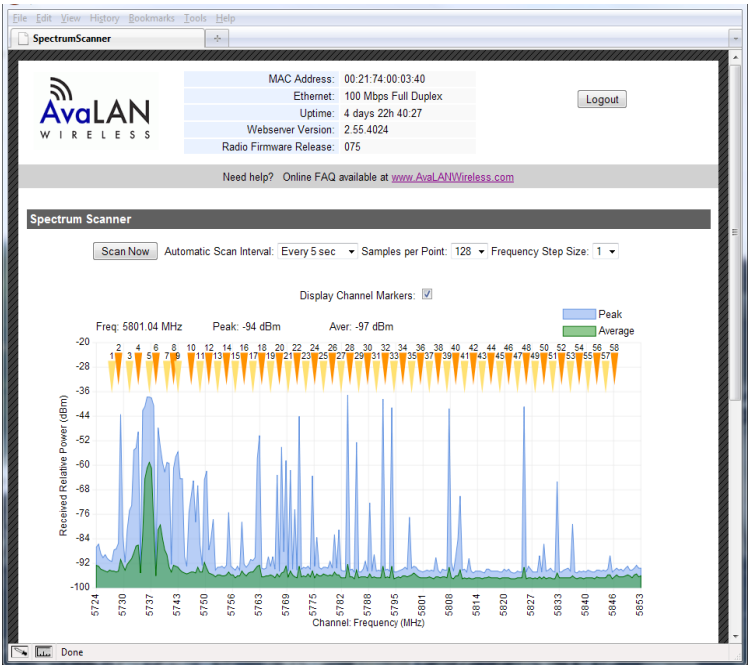
3. From the ipfinder window, you can change the TCP/IP properties of the AW5800-SPEC if you wish, or just browse to it. Double-click its line in the list, then change parameters and click "Apply", or just click "Go to Device Web Page" to launch your default browser. You can also launch the browser by right-clicking the device line in the opening ipfinder window.

4. Your browser window will open the AW5800-SPEC's login page:



(Note that the IP address and other parameters for your unit will be different from those in the picture.)

5. Enter the password (default is "password") and click "Login". You will then see the main spectrum analyzer window similar to this:

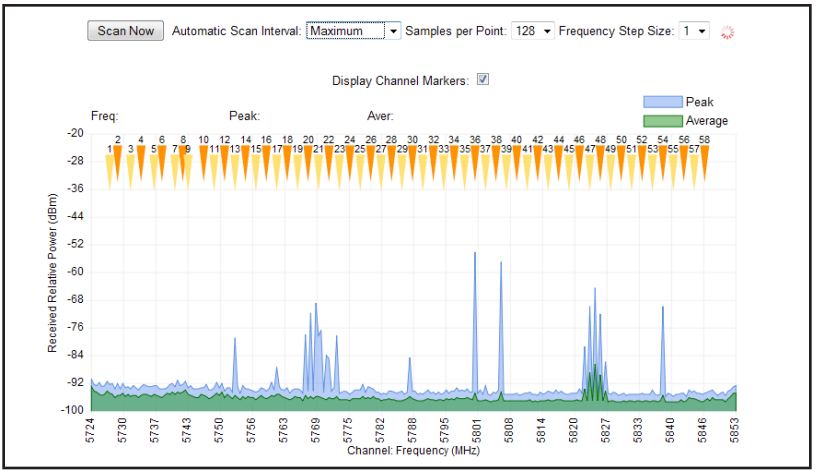


6. The spectrum analyzer controls are quite simple:
   - The "Scan Now" button initiates a spectrum scan.
   - The Automatic Scan Interval dropdown allows you to select the time between scans. Note that more samples per point and finer frequency resolution will take longer, up to 2 seconds for a step size of one and 256 samples per point.
   - The Samples Per Point dropdown controls how many measurements are taken at each frequency and averaged together.
   - The Frequency Step Size dropdown controls the frequency resolution of the scan. A step size of one provides over 240 samples across the range, about 500 kHz per step.

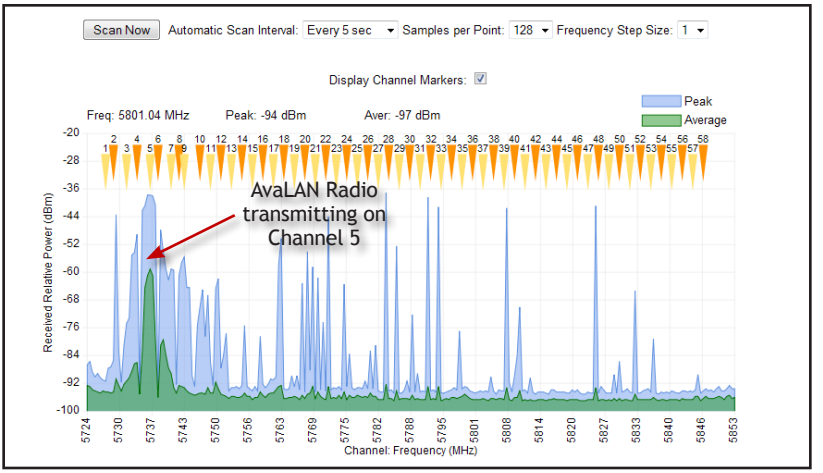
7. The graph shows both peak and average dBm readings. Optionally, you can display markers on the graph corresponding to the 58 channels that AvaLAN radios employ in the 5.8 GHz band. If you wish to make a hard copy of the graph, you can use your browser printing capability or any of a number of screen capture methods.

Sample Spectra

Here is an example of a relatively quiet environment. If your scan shows that there is low in-band noise on all channels, you will probably want to leave your AvaLAN radio in auto-frequency selection mode, allowing it the opportunity to change channels as needed should interference arise later.



This next example shows a strong in-band signal (in this case caused by another AvaLAN radio operating in the vicinity on Channel 5.



Please note that it is quite common to see transient spikes in the 5.8 GHz band caused by cordless phones. They will not affect the reliability of data transmission, but if severe, they could degrade the data rate a bit because of sub-packet retransmissions.

5.8 GHz Channels

Channel	Frequency - MHz	Channel	Frequency - MHz	Channel	Frequency - MHz
0	Auto Mode	20	5767.7083	40	5809.3750
1	5728.1250	21	5769.7917	41	5811.4583
2	5729.6875	22	5771.8750	42	5813.5417
3	5732.2917	23	5773.9583	43	5815.6250
4	5734.3750	24	5776.0417	44	5817.7083
5	5736.4583	25	5778.1250	45	5819.7917
6	5738.5417	26	5780.2083	46	5821.8750
7	5741.1458	27	5782.2917	47	5823.9583
8	5742.7083	28	5784.3750	48	5826.0417
9	5743.7500	29	5786.4583	49	5828.1250
10	5746.8750	30	5788.5417	50	5830.2083
11	5748.9583	31	5790.6250	51	5832.2917
12	5751.0417	32	5792.7083	52	5834.3750
13	5753.1250	33	5794.7917	53	5836.4583
14	5755.2083	34	5796.8750	54	5838.5417
15	5757.2917	35	5798.9583	55	5840.6250
16	5759.3750	36	5801.0417	56	5842.7083
17	5761.4583	37	5803.1250	57	5844.7917
18	5763.5417	38	5805.2083	58	5846.8750
19	5765.6250	39	5807.2917		

Limited Warranty

This product is warranted to the original purchaser for normal use for a period of 360 days from the date of purchase. If a defect covered under this warranty occurs, AvaLAN will repair or replace the defective part, at its option, at no cost. This warranty does not cover defects resulting from misuse or modification of the product.

Compliance Statement (Part 15.19)
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning (Part 15.21)
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure (OET Bulletin 65)
To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 20cm separation distance between the antenna and all persons.

Information to the User - Part 15.105 (b)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
--Reorient or relocate the receiving antenna.
--Increase the separation between the equipment and receiver.
--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--Consult the dealer or an experienced radio/TV technician for help.